Analysis of Caesarean Section Using Robson's Ten Group Classification at Tertiary Care Centre in North Rajasthan

Amrita Mishra, Jaya Chaudhary

Abstract: *Caesarean section rate has been increasing worldwide. WHO (1985) stated that there is no justification for any region to have caesarean section rate higher than 10-15%. This study aims to analyse caesarean section rate trends using Robson`s Ten Group Classification System at tertiary care centre in North Rajasthan. A retrospective observational study was done and all the details of the patients who underwent delivery in hospital were recorded. Women were categorized in Robson`s classification group and absolute and relative group classification were calculated. There were total 2309 deliveries out of which 966 were by caesarean section, making caesarean section rate 41.8%. Group 5 followed by Group 2 were major contributors of caesarean sections. These target groups require more in depth analysis to identify possible modifiable factors and to apply possible interventions to reduce caesarean section rate.*

Keywords: Caesarean section; Robson`s classification; Caesarean section rate; Robson`s group

1. Introduction

Caesarean section rate has been increasing worldwide. However, C-sections have gradually become common in developing countries, and it`s already quite common in the developed countries for a long time. In terms of the developing countries, India, the C-section rates have crossed the WHO threshold of 15%, a severe public health concern. [1]

WHO has made Robson`s classification in order to standardize, monitor and classify caesarean section rates.

The Robson classification system classifies all deliveries into ten mutually exclusive and totally inclusive groups based on a set of predefined obstetric parameters. These include gestational age, parity, previous CS, number of foetus, onset of labour, and foetal presentation.

There are various reasons for differences in caesarean section rate in various countries and institutions. These include the inherent differences in patient characteristics, type of institution and available resources. In addition, institutional differences in obstetric practice and pregnancy and labour management protocols can account for this variation. [2]

[1]

The aim of the present study is to conduct an analysis in tertiary care centre of North East Rajasthan (Mahatma Gandhi Medical College & associated Hospital)to assess levels and trends of delivery by caesarean section using Robson classification for caesarean section and to identify the groups of women with highest caesarean section rate.

2. Method

A retrospective study was conducted in department of Obstetrics and Gynaecology in Mahatma Gandhi Hospital from 1st January 2021 to 30th June 2022. The study population include all women giving birth to live baby after 28 weeks of pregnancy during study period.

All women delivered by caesarean section were categorised into Robson's criteria as follows:
1) Nulliparous, single, cephalic >37 weeks in spontaneous labour.
2) Nulliparous, single, cephalic>37weeks induced or CS before labour.
3) Multiparous (excluding previous CS) single, cephalic, >37weeks in spontaneous labour.
4) Multiparous (excluding previous CS) single, cephalic, >37weeks induced or CS before labour.
5) Previous CS, single cephalic >37weeks.
6) All nulliparous breech.
7) All multiparous breeches (including previous CS).
8) All multiple pregnancies (including previous CS).
9) All abnormal lies (including previous CS).
10) All single, cephalic <36weeks (including previous CS).

All relevant obstetric information (parity, gestational age, previous caesarean section and indications, and spontaneous or induced labour) were obtained and Robson`s criteria was applied. The Relative and absolute contribution by each group to caesarean rate was calculated.

3. Results

There were total 2309 deliveries and 966 caesarean deliveries during study period. Overall caesarean section rate

was 41.8% Robson`s group 5 contributed to largest proportion of caesarean section making 34.2% of all sections, this was followed by Group 2 accounting for 32.4% of caesarean section. Group 10 was third group contributing to 11.8% of caesarean section.

Robson Group	Number of Women	Relative Group Contribution (%)	Absolute Group Contribution (%)
GROUP 1	7	0.72	0.30
GROUP 2	318	32.9	13.7
GROUP 3	3	0.31	0.12
GROUP 4	94	9.73	4.07
GROUP 5	331	34.2	14.3
GROUP 6	46	4.76	1.99
GROUP 7	21	2.18	0.90
GROUP 8	23	2.38	0.99
GROUP 9	9	0.93	0.38
GROUP 10	114	11.8	4.93

This table shows relative and absolute group contribution to caesarean section rate. As our centre is tertiary care centre this can also be the reason behind increased caesarean rate.

4. Discussion

Caesarean section is an intervention to decrease maternal morbidity and mortality. It is also an indicator of quality of health services. [3]

Caesarean section rate has been increasing worldwide due to various reasons. In 2015, WHO proposed Robson classification (also known as 10 group classification) as gold standard for assessing, monitoring and comparing caesarean section rates both within healthcare centre and between them [4]. It classifies all deliveries into ten mutually exclusive and totally inclusive based on a set of predefined obstetrics characteristics (parity, number of foetus, previous caesarean section, onset of labour, gestational age and fetal presentation)

In our study, total number of women delivered during study period were 2309 and women delivered by caesarean section were 966 making overall caesarean rate 41.8%. Group 5 (previous caesarean section) and Group 2 (nulliparous, singleton, cephalic, induced labour or caesarean section before labour) represented the two largest groups contributing to caesarean sections.

Group 5 turned out to be most prevalent group accounting to 34.2% of all caesarean sections. Though the safety and long term benefits of vaginal birth after caesarean section (VBAC) are well established, repeat caesarean is most important contributor of caesarean section. There is need to evaluate the proportion of women offered trial of labour and success rate of VBAC.

This group should be focussed to reduce caesarean section rate.

Group 2 was second largest contributor for caesarean section, most common reasons being non progress of labour, fetal distress and arrest of descent of head. This was followed by group 10 (preterm sections) accounting for 11.8% of caesarean sections. Robson classification doesn't clearly specify indication for surgery, may be due to maternal indication or any foetal indication.

Group 1 (nulligravida in spontaneous labour), group 4 (multipara in spontaneous labour) has lesser rate of caesarean section.

Group 6 (primi with breech) accounted for 4.76% of caesarean section and group 7 (multigravida with breech) accounted for 2.18 % of section rate. Group 9 (abnormal lie), absolute indication of caesarean section, contributed to 0.93% of section rate.

Our study findings correlated with study done by Christabel et al in 2021 in which overall caesarean rate was 44.2% and major contributor was group 5 followed by group 2 [5]. Similar study done by Bismeen et al in 2020 showed overall caesarean rate was 55% and group 5 contributed the most (36%) of all caesarean section. [6]

These results may be representative of caesarean sections being performed in North Rajasthan. This shows we need to focus on group 5 and group 2 sets of women to decrease caesarean section rates. Though our study has limitation of small sample size so, this cannot be generalized to whole population. Robson `s classification have also drawback as certain groups does not clearly specify indications for surgery as in Group 10 (maternal / fetal indication). This could be a limitation of Robson`s Classification.

5. Conclusion

As per Robson`s Ten Group Classification, Group 5 and Group 2 were found to be most contributing groups among all caesarean sections. These target groups require more in depth analysis to identify possible modifiable factors and to apply possible interventions to reduce caesarean section rate.

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